3M™ MicroTouch™ Software MT 7 User Guide

For Microsoft® Windows®
and Linux® Operating Systems

Read and understand all safety information
contained in this document before using this product.

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Introduction

About This Manual

This manual describes how to:

- Install 3M™ MicroTouch™ Software MT 7 for your touch system and specific operating system.
- Use the MT 7 control panel to customize your work environment.
- Troubleshoot the touch sensor.

Before installing MT 7 software, you must complete the appropriate hardware connections for your controller. For instructions, refer to your appropriate 3M™ MicroTouch™ Controller Reference Guide. All technical documentation can be found on the 3M Touch Systems, Inc. website at www.3mtouch.com.

The drivers included in MT 7 will support the following:

- All current 3M™ MicroTouch™ controllers (no legacy controllers) and chipset designs.
- Capacitive and resistive touch technologies
- Both USB and RS-232 communication protocols.

Sensor Care and Cleaning

The sensor requires very little maintenance. 3M Touch Systems, Inc. recommends that you periodically clean the glass surface.

⚠ CAUTION
To reduce the risk of the potentially hazardous situations associated with the use of isopropyl alcohol which may result in minor or moderate injury or property damage: Follow all instructions and recommendations in the alcohol manufacturer's Material Safety Data Sheet and product label.

Typically, an isopropyl alcohol and water solution ratio of 50:50 is the best cleaning agent for your sensor. You can also use straight isopropyl alcohol. Be sure to follow solvent manufacturer's precautions and directions for use when using any solvents.

- It is important to avoid using any caustic chemicals on the sensor.

- Always dampen the cloth and then clean the sensor. Be sure to spray the cleaning liquid onto the cloth, not the sensor, so that drips do not seep inside the display or stain the bezel.
- Apply the cleaner with a soft, lint-free cloth. Avoid using gritty cloths.
- Always handle the sensor with care. Do not pull on or stress flex tail.

3M Touch Systems Support Services

3M Touch Systems, Inc. provides extensive support services through our website and technical support organization. Visit the 3M Touch Systems website at http://www.3Mtouch.com/, where you can download touch system software and drivers, obtain regularly updated technical documentation on 3M Touch Systems products, and learn more about our company.

Whenever you contact Technical Support, please provide the following information:

- Touch display size, part number and serial number
- Current driver version
- Operating system used
- Information on additional peripherals

Technical Support is available Monday through Friday 8:30 a.m. to 5:30 p.m. with limited call back service after 5:30 p.m. until 8:00 p.m. US Eastern Standard Time – 9 a.m. to 5 p.m. throughout Europe.

You can contact 3M Touch Systems, Inc. Technical Support (US only -- Eastern Standard Time) by calling the hot line, sending email or a fax.

- Technical Support Hot Line: 978-659-9200
- Technical Support Fax: 978-659-9400
- Toll Free: 1-866-407-6666 (Option 3)
- Email: US-TS-techsupport@mmm.com

Contact 3M Touch Systems

Contact information for all offices can be found on our website at: http://www.3Mtouch.com/

CHAPTER 1

Installing MT 7 Software

3M™ MicroTouch™ Software MT 7 allows users to select, launch, and drag objects using the touch sensor. MT 7 provides support for MicroTouch™ sensor operation for all applications running under the following operating systems:

- Microsoft® Windows® 7
- Microsoft® Windows® Vista
- Microsoft® Windows® XP
- Microsoft® Windows® Server™ 2008
- Linux®

MT 7 Software Overview

Your touch product includes several software tools to help you work with and customize the touch sensor. Specifically, MT 7 software includes the following programs and utilities:

- Touch drivers
- Control panel
- Software uninstall utility – Windows® only
- Calibration tool
- Multi Monitor tool – Windows® only

Touch Drivers

Touch drivers are the software the system uses to communicate with the touch controllers. MT 7 Software includes drivers for applications running in different operating environments. You can run programs and use touch (finger or stylus) input without any program modifications.

MT 7 Control Panel

You can use the MT 7 control panel to set your preferences for the touch sensor. For example, you can define the following preferences:

- Whether the touch action occurs when you touch the sensor or when you lift your finger (or stylus) off the sensor.
- Whether you hear a sound when you touch the sensor.

- Define a frame around the active touch area in which the cursor moves closer to the edges of the sensor.

You can also use the MT 7 control panel to calibrate the touch sensor and run optional programs.

Online Help

MT 7 software enables you to launch a fully searchable PDF of this User Guide from the Control Panel.

MT 7 Windows™ Software Uninstall Utility

The Uninstall utility automatically deletes all MT 7 software components from your computer and removes most MT 7 software entries from the system files. For details on how to uninstall MT 7 for Windows™ CE, Windows™ XP Embedded, and Linux, refer to Chapters 3, 4, and 5.

Calibration Tool

This tool enables you to calibrate your touch sensor without launching the control panel.

Multiple Monitor Manager

This tool enables you to set up an arrangement of multiple displays with touch sensors.

Microsoft WHQL Certification

Note that the MT 7 touch driver is WHQL certified. WHQL certification is designed to ensure that the new hardware device complies with operating system requirements. Without the WHQL certificate, the user is notified of 'potential compatibility issues' when installing the device.

Installing MT 7 Software

Note: For specific installation instructions for Windows™ CE, Windows™ XP Embedded, and Linux, refer to Chapters 3, 4, and 5.

When you install MT 7 software, you have several installation options:

- Typical Install (basic features needed to support touch)
- Full Install (installs all components)
- Custom Install (select which components you wish to install)
- Upgrade (if you have MT 7 software already, will update the components you have installed)

To install MT 7 software:

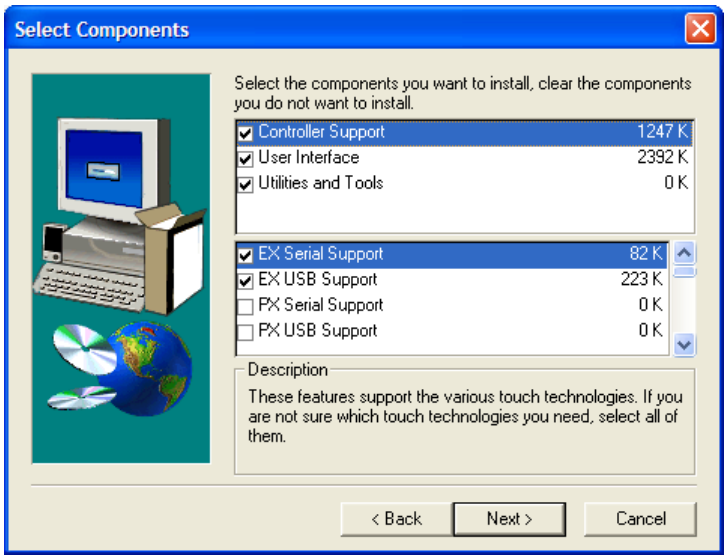
1. Make sure you have completed the appropriate hardware connections. Serial controllers should be connected before you begin. USB can be plugged in either before or after. The controller can then be automatically detected and there will be no need to reboot.
2. Power on your system. Make sure no other applications are open.
3. Download the MT 7 Software program from the www.3Mtouch.com website. Unzip the file into a directory of your choice. Using Windows® Explorer, browse to that MT 7 folder and double-click the Setup.exe file.
4. Follow the onscreen instructions to begin the installation.
5. When prompted to choose the installation type, select whether to perform a Typical Install, Full Install, or Custom Install (or, if available, Upgrade).

During installation, you may get messages about finding new hardware. This is the MT 7 driver searching your serial ports for touch controllers.

The Typical option automatically installs the minimum required MT 7 software files, creates a MT 7 program group and control panel.

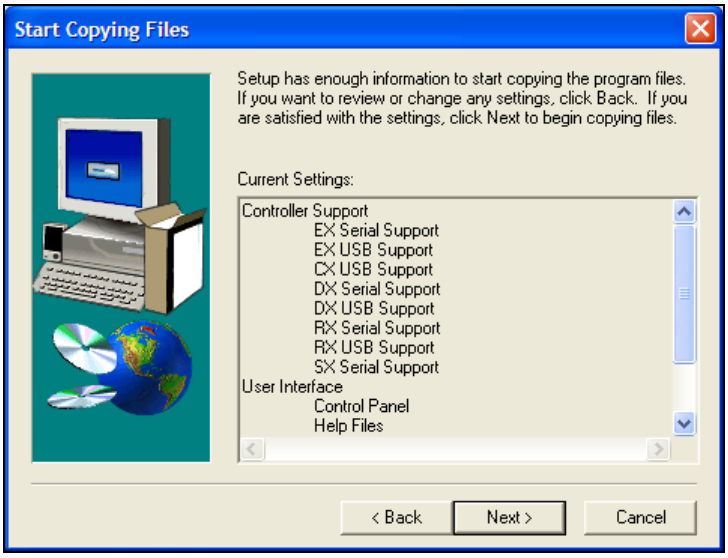
If you choose Custom or Upgrade, you can select which components to install. The following components are available: Controller Support, User Interface and Utilities and Tools.

Controller Support



Various controller support is available. By default, all controller support is installed. If you do not want to support a specific controller, deselect that component in either the upgrade or custom setup screens.

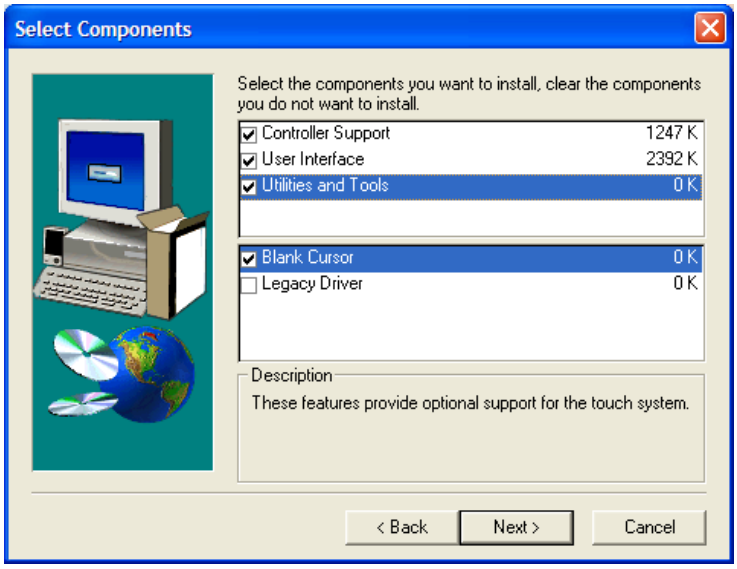
User Interface



The User Interface provides the following components:

- The Control Panel is used to configure the touch sensor
- The Help button launches a searchable PDF of this guide
- The Calibration Tool is recommended if you are not loading the Control Panel.
- The Multiple Monitor Manager enables you to set up multiple displays with touch sensors. You must load this file in order to configure multiple displays.

Utilities and Tools



This option enables you to hide the cursor. By selecting this, MT 7 Software installs a blank cursor on your system. To always hide the cursor, open the Windows™ Control Panel, select mouse settings and then browse to the MicroTouch folder and select blank cursor.

The MT7 drivers now act as HID devices. Under XP operating as a HID mouse. Under Vista and Windows 7 the driver acts as digitizer to take advantage of the multitouch features of newer systems.

If you want the traditional mouse driver, select the Legacy driver option from this screen. This replicates the behavior from MT7.12 and earlier.

Performing a Silent Install

If you have to perform multiple system installations, you may want to take advantage of the MT 7 software silent install.

To begin, you must create a silent install script that contains the recorded installation instructions. You create this script by running the Setup program in record mode. During a silent install, the Setup program receives input from the recorded install script rather than from a user. Once you record an installation script, you can run it on as many similar systems as you like.

The first step in producing a silent installation is to record your standard installation. Open a command line window and set your working directory to the directory containing the MT 7 for Windows™ setup program. Issue the command "setup -r" and run the installation normally.

When the installation finishes, it creates a recording file, setup.iss, in your Windows™ system directory (such as C:\Windows). Copy this file to the directory containing the MT 7 for Windows™ setup program.

To run the silent installation, simply issue the command "setup -s". This replays the installation you recorded above.

Note that the silent installation fails if the installer reacts differently than when it was recorded. For example, if you record an installation using the "Upgrade" option and replay it on a system without MT 7 for Windows, the installation may fail. You should test the silent installation on all expected configurations.

Since the recording process creates a file, the MT 7 program must be on a hard drive and not on a CD-ROM. Once the file is created, you can make a CD-ROM, or equivalent media, with the distribution files and the setup.iss file. Your use of this CD-ROM is subject to the license agreement of this software. This feature does not give you the right to distribute this software if that right is not already granted to you by the license agreement.

Customizing Your Touch Settings

Once you have installed MT 7 software, you can optimize the performance of the touch sensor using the MT 7 Control Panel. You can adjust settings for touch sounds, double-click speed, and double-click area (not applicable to WIN CE or Linux® systems).

Note: You can define touch settings using the MT 7 Control Panel. MT 7 stores the touch settings in the Windows® system registry. Whenever you save changes to the MT 7 Control Panel, MT 7 software records the new settings in the system registry. These changes take effect immediately.

Uninstalling MT 7 Software

The Uninstall program removes all MT 7 software components from your computer. These components include MT 7 software files, directories, folders, and registry key items. The Uninstall program also removes all MT 7 software entries from the system registry files.

Note: For details on how to uninstall MT 7 for Windows™ CE, Windows™ XP Embedded, and Linux, refer to Chapters 3, 4, and 5.

To uninstall MT 7 software:

1. Close MT 7 software if it is open.
2. Click on Start → Programs → MicroTouch → MT 7 → Uninstall MT 7 Software The path may be different if you performed a custom installation and chose a custom name for the MT 7 software program group.
3. Follow the onscreen instructions to remove MT 7 software. 3M Touch Systems strongly suggests you reboot your system when complete.

CHAPTER 2

MT 7 Software Control Panel

Overview

The MT 7 software control panel consists of tabs that allow you to determine the best settings for your touch system configuration.

- Use the Main tab to run a 3-point calibration routine for optimum accuracy of your touch sensor.
- Use the Touch Settings tab to define the touch actions that equate to mouse actions and add right-click functionality to the touch sensor.
- Use the Edge Adjustment tab to define a frame around the active touch area in which the cursor moves closer to the edges of the sensor.
- Use the Tools tab to restore hardware or software defaults, reset controller, run Draw Test from the desktop, and to enable Advanced Options for your touch sensor.
- Use the Controller tab to activate linearization, select frequency, set controller ID, and determine pen/finger modes. Note that this tab appears only if you have selected the appropriate options from the Advanced Options from the Tools tab and have the specific type of controller attached to your system.

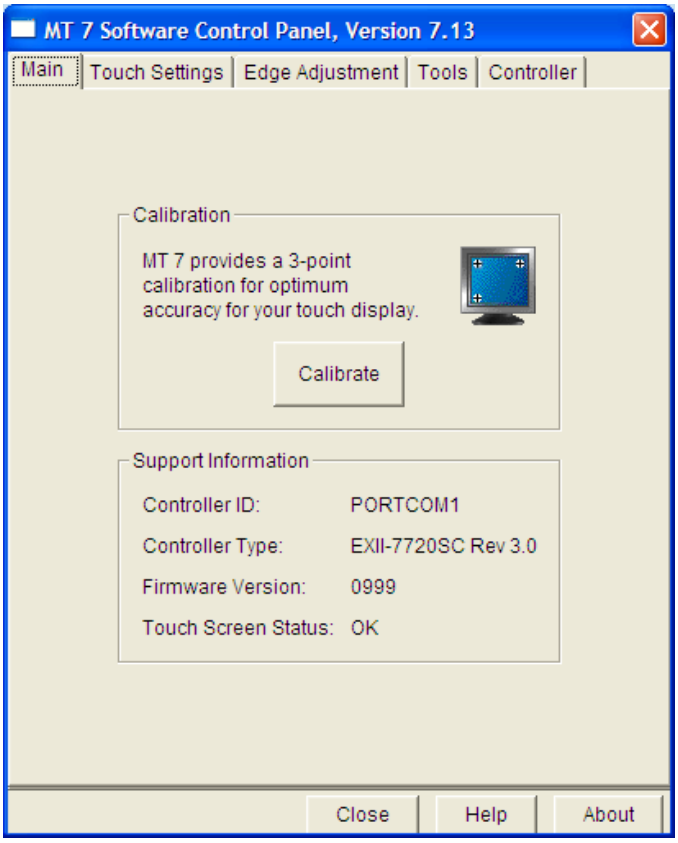
Opening the MT 7 Control Panel

You can open the MT 7 control panel by clicking:

Start → Programs → MicroTouch → MT 7 → Control Panel.

Main Tab

This tab covers touch sensor calibration as well as basic support information.



Calibration

The calibration process aligns the touch sensor with the underlying video. Specifically, calibration defines the dimensions of the active area of the sensor and locates the center of the sensor. If the sensor is not calibrated, the active area of the sensor may not be aligned properly or may be unnecessarily small.

You should calibrate the touch sensor in the following cases:

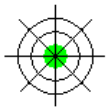
- Any time you change the size and position of the video image by adjusting the horizontal and vertical controls on your display.
- Any time the cursor does not follow the movement of your finger, or does not reach the edges of the touch sensor. If you continue to need additional accuracy along the edges, use the Edge Adjustment tab.

Calibrating the Touch Sensor

1. Select the Main tab.
2. Click the Calibrate button.

Note: If you are using a stylus (pen) and you are in Pen/Finger mode, a dialog will ask whether you wish to calibrate using Pen or Finger. Calibrate using each option separately and when you are done, MT 7 will restore your touch mode to Pen/Finger.

3. A calibration target appears in the lower left corner of the touch sensor.



Note: If you press Escape or do not touch the sensor within twenty seconds, the system automatically cancels the calibration process with no change to the current settings.

4. Touch the sensor positioning your fingertip to completely cover the green target. This position is calculated upon liftoff and when you remove your finger, the target should turn red.

   When touching the calibration target, make sure to:
   - Face the display directly.
   - Perform the calibration in the position (sitting or standing) you expect to normally use the touch sensor.
   - Touch the calibration target firmly and precisely with your fingertip. During Calibration, be careful to keep your fingernails and other fingers away from the touch sensor as you touch the target.
5. Repeat these instructions for additional calibration targets.
6. Once you have calibrated the touch sensor, a dialog box will appear to ask if you wish to test, accept or cancel this calibration.
   - If you select Accept, then the new calibration settings are automatically accepted.
   - If you select Test, then a Draw (refer to the Tools tab for more details) screen appears. When you exit Draw mode, a dialog will prompt, “Are you satisfied with the results?”
     - Selecting Yes will keep the new calibration settings.
     - Selecting No will restore the original (pre-calibration) settings.
   - If you select Cancel, the original settings will be restored without change.

Testing the Calibration

If you accidentally liftoff from the sensor in the wrong place during calibration, you will distort the touch sensor calibration. Test by touching several points on the sensor to make sure you are satisfied with the calibration results. The cursor should be located underneath your finger or pen when you touch the sensor. Repeat the Calibration process until you are satisfied. Recalibrate the touch sensor if any of the following tests fail.

- Touch random points on the sensor. The cursor should be located underneath your finger or pen when you touch the sensor.
- Drag your finger across the sensor and check that the cursor follows your movements.
- Touch each corner and along the edges of the sensor. Verify that the cursor reaches the full image area of the sensor. Be sure you can touch and activate all icons and menus across the entire sensor.
- If you are using a pen stylus, be sure to perform the calibration procedure using the pen.
- If you need to recalibrate the sensor, make sure to touch the targets carefully. It is possible that one of your touches did not register properly or you accidentally touched the sensor in the wrong place during calibration. For example, if you touch beyond the targets or into the non-image area, you will distort the sensor calibration.

Support Information

This information helps identify your system setup for troubleshooting purposes. If for any reason you need to call Technical Support, this information will be useful.

Controller ID

On the Main tab, this is an information-only field in a single controller situation – if you have more than one controller you can select the specific controller you want to adjust.

This field identifies the controller(s) attached to your system. It will display unique identifiers for each controller attached to your system in a drop box. When you select a controller from this list, the Controller tab will reflect only this controller – any changes will be made only to this controller.

- USB controller values include USB00000001, USB00000002, or USB00000003.
- For EX serial controllers values include PORTCOM1, PORTCOM2, PORTCOM3, etc.
- For other serial controllers values include SER00000001, SER00000002, etc.

Controller Type

This field displays the type of controller currently attached to your system. This data may be useful for Technical Support issues. The touch controllers supported with this release are as follows:

- EX USB, HID, and Serial capacitive and resistive controllers
- CX USB controllers
- DX Dual mode (USB and Serial) controllers
- PX Dual mode (USB and Serial) controllers
- RX USB and Serial resistive controllers
- SX Serial pen controllers

Firmware Version

These digits represent the version number and revision level of the touch controller firmware.

Touch Screen Status

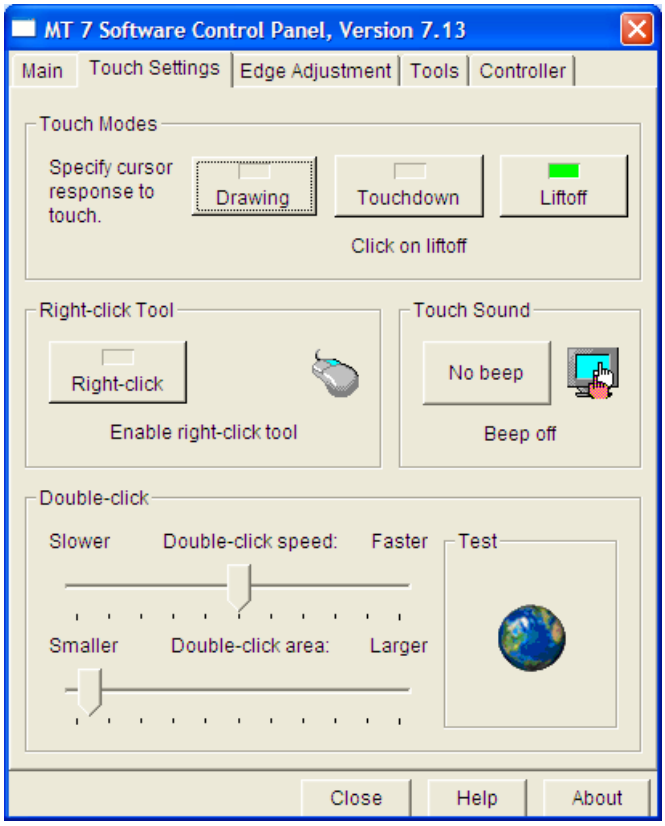
Touch Screen Status refers to whether or not the sensor has been found and is operational.

Some of the possible messages include:

- OK – Sensor found and operational.
- BLK Error – Hardware error such as a checksum error in controller EEPROM.
- CBL Error – Cable NOVRAM missing – this is only an error in systems requiring cable NOVRAM.
- HDW Error – Hardware error.
- LIN Error – Linearity data error.
- NOV Error – Checksum error in NOVRAM, using defaults.
- PWM Error – Hardware error.
- ROM Error – Checksum error in ROM.
- SET Error – Unable to establish operating range at power-up.

Any other condition indicates a hardware failure. Contact Technical Support for more information.

Touch Settings Tab



The Touch Settings tab enables you to customize the response of your touch sensor. You can change the way the system responds to your touch, add a right-click tool to your desktop, tell your system to beep on touch, and define the double-click speed and area of your touch.

Touch Mode

The available Touch Mode options are Drawing, Touchdown, and Liftoff.

Drawing Mode (Default Value)

Drawing Mode is most useful for draw, paint, illustration, and graphics applications. In Drawing Mode, a touch is equivalent to pressing and holding down the mouse button. This is considered the easiest mode to use with an immediate reaction to touch. Lifting off is equivalent to releasing the mouse button.

- To click, touch the object. Lift off the sensor.
- To double-click; touch the object twice quickly at the same location.
- To drag, touch the object. Slide your finger to the new location. Lift off the sensor.

Touchdown Mode

Touchdown Mode enables you to create an immediate button action as soon as you touch the sensor. In Touchdown Mode, you cause a button down at the cursor location, with a short pause and then a button up. You can leave your finger on the sensor but only a single touch is registered until you lift your finger off the sensor and touch down again.

Touching the sensor is equivalent to pressing and releasing the mouse button. The action occurs as soon as you touch the sensor. This mode is best for button-based applications (like a calculator). Drawing or dragging is not supported in this mode.

Liftoff Mode

Liftoff Mode enables you to position the cursor where you want before creating a button action. In Liftoff Mode, the cursor will follow your finger for a more accurate touch. When you want to select an item, lifting your finger off the sensor will cause a button down, short pause, and then a button up to occur.

Touching the sensor is equivalent to moving the mouse position. The button down/button up action occurs when you remove your finger from the sensor. This mode is useful for applications requiring greater accuracy because it lets you carefully position the cursor before acting on it. Drawing or dragging is not supported in this mode.

Right-Click Tool (not available on Linux)

This option places an icon on the desktop (always on top of your application) that allows you to select which mouse button to activate on touch. Note that this works for the next click action only. Control returns to the left mouse button as soon as you are done.

You can position this icon anywhere on your desktop by selecting it, pausing until the four-pointed arrow appears, and dragging it wherever you want.

Left button is typically used for normal select and normal drag. Right button is typically used for applet properties such as context menu and special drag.

Touch Sound

Select audible beep on touchdown, liftoff, or no beep at all. Click on the Beep button to select the appropriate option for your application. The default setting is no beep on touch (Beep off).

Double-Click Speed (not available on Windows® CE or Linux®)

Double-click speed defines how quickly you must touch the sensor for the system to interpret your actions as a double-click. Set the double-click speed in the slow to medium range for optimum performance with a touch sensor.

Touch the globe twice to test the double-click speed and area settings. If the globe begins to spin, the sensor recognized your touch as a double-click.

Note: Changing this setting will affect the double-click setting of the mouse.

Double-Click Area (not available on Windows® CE or Linux®)

Double-click area defines the *space* in which you must touch the sensor for the system to interpret your actions as a double-click. Set the double-click area in the medium to high range for optimum performance with a touch sensor.

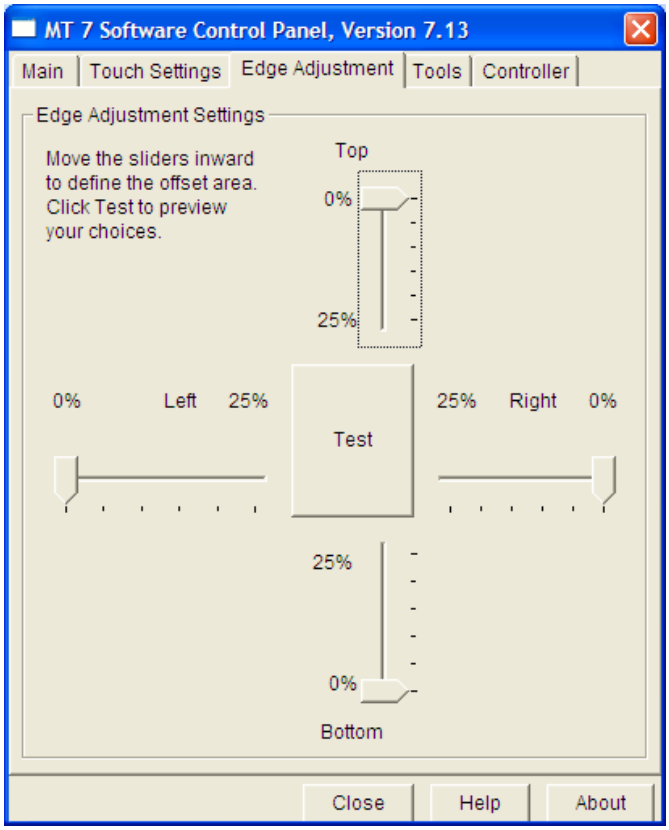
Touch the globe twice to test the double-click speed and area settings. If the globe begins to spin, the sensor recognized your touch as a double-click.

Note: Changing this setting will affect the double-click setting of the mouse.

Edge Adjustment Tab

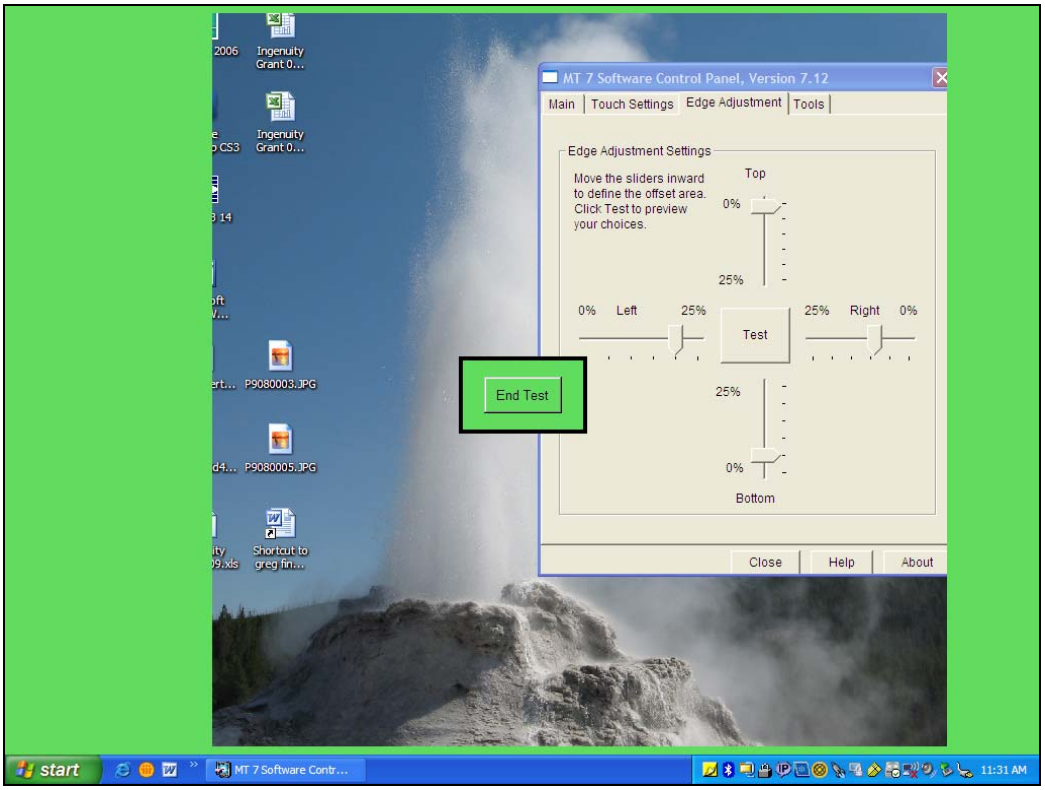
Once you calibrate the touch sensor, the cursor should be located directly beneath your finger when you touch the sensor. However, this may make it difficult to touch items at the very edges of the sensor. The Edge Adjustment tab enables you to define an offset area in which the cursor moves closer to the edges of the sensor so you can easily and more precisely select small items, such as single words, the Windows™ Start button, check boxes, or radio buttons.

For example, if you have a row of buttons along the left edge of your touch sensor, you may want to set an edge adjustment to enable users to easily activate these buttons. Because each edge is independent of the other, you only need to adjust the left margin to accommodate this row of buttons.



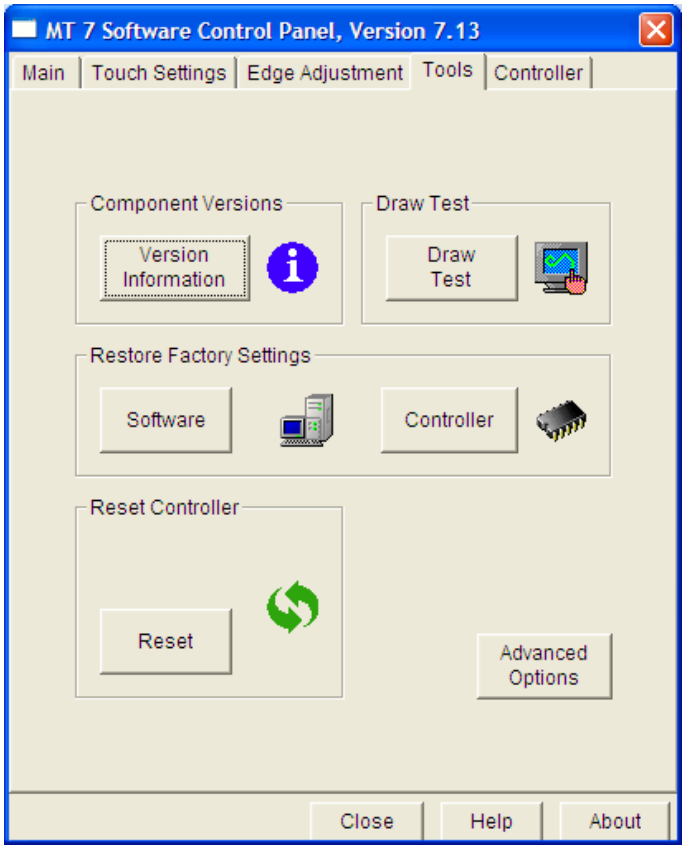
Edge Adjustment Setting

To set the Edge Adjustment, move the sliders inward to define the offset area. These changes take effect immediately. Click Test to preview your choices. The area you have defined appears as a colored area as shown below. Within this colored area, the cursor will automatically move ahead of your finger so you can more easily touch items closer to the edge.



Determine if the area you have defined is sufficient for your needs. Can you touch into the corners and along the edges of the sensor? Click Escape, End Test, or Return to go back to the Edge Adjustment tab. If you are satisfied with the selections you have made – you are done. If not, adjust the sliders to better accommodate your needs.

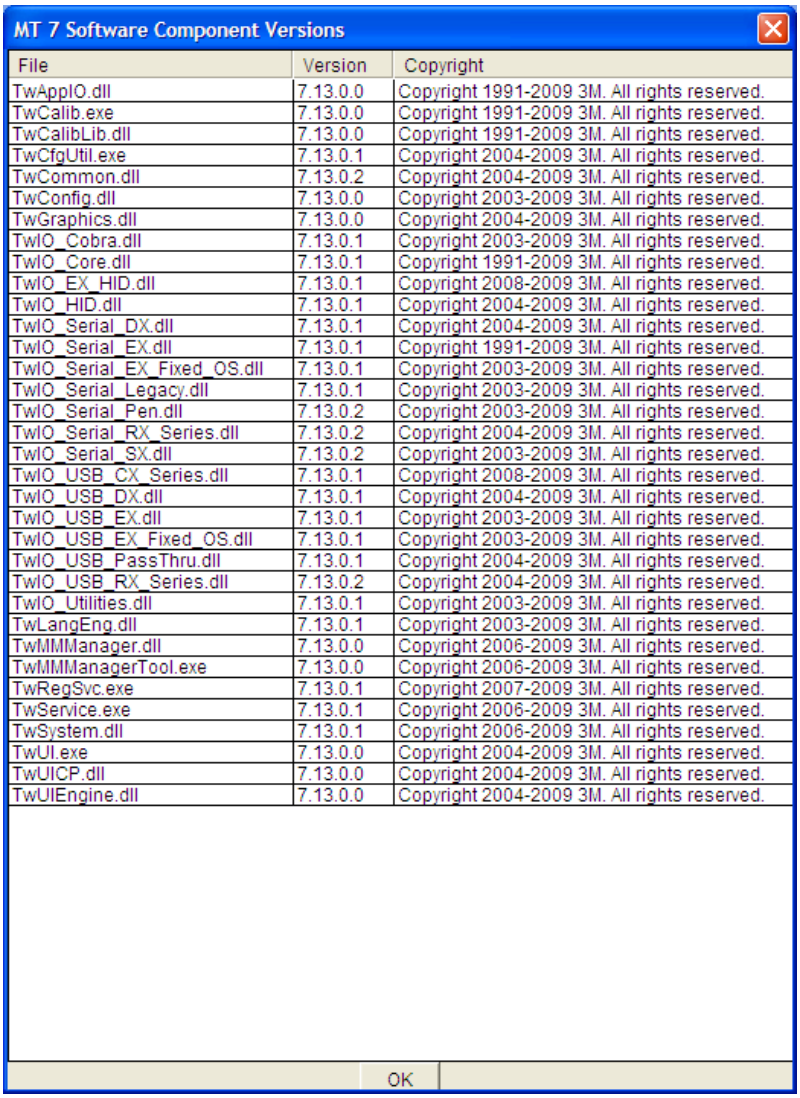
Tools Tab



The Tools tab enables you to perform a variety of diagnostics to optimize the performance of your touch sensor. This tab is also the gateway to advanced touch options.

Component Versions

This is an informational screen for diagnostic purposes that details the building blocks of MT 7 and its version numbers.



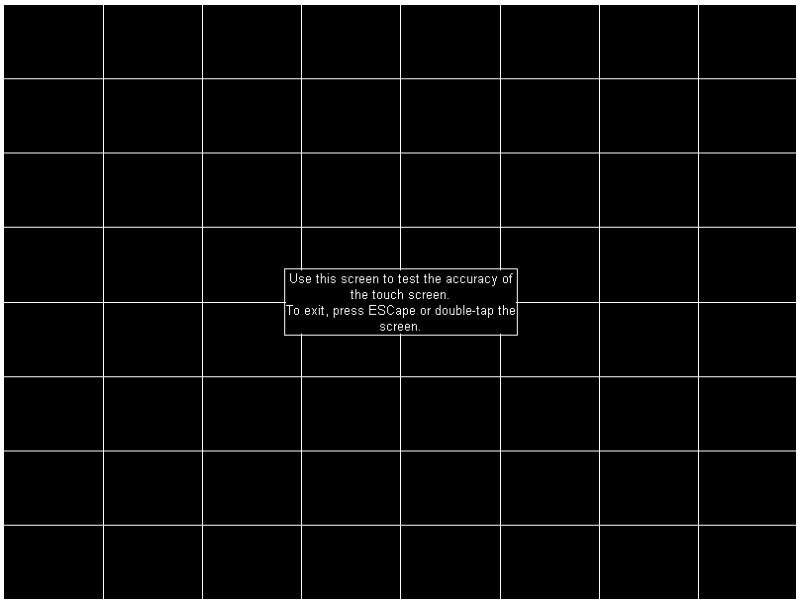
Draw Test

Note: You must be in Draw mode for this to work properly.

The Draw program lets you test the operation of the touch sensor and pen by checking the accuracy and speed with which the system responds to your touch. To draw, simply touch the sensor and drag your finger or pen.

The following options will help you use the draw program more effectively:

- Press B (blank) to clear the screen and display a blank drawing canvas.
- Press G (grid) to clear the screen and display a grid that you can use as a drawing guide (default setting).
- Press L (line) to draw solid lines on the screen (default setting).
- Press D (dots) to draw dotted lines on the screen, where each dot represents a point reported by the touch sensor.
- Press the Space Bar to clear the screen.



Restore Factory Settings

Software

The Reset Software option is useful if you have reconfigured the MT 7 software and need to get back to a working state. This option will restore supplier factory configuration settings. If none exist, it will reset to 3M Touch System defaults.

Controller

The Restore Controller option is useful if you have reconfigured the controller and need to get back to a working state. Pressing this button restores 3M Touch System factory-set system defaults.

If after restoring controller factory defaults, you lose touch, you will need to reboot in order to restore touch.

Note: You must perform a calibration after restoring controller defaults.

Reset Controller

Use this only at the direction of Technical Support. This command initializes the hardware and the firmware, causes the controller to stop sending data, and recalculates the environmental conditions (for example, stray and offset values). The Reset command also cancels existing commands and returns the controller to normal operation.

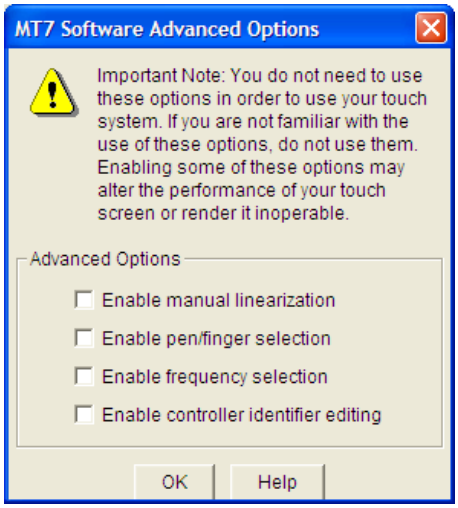
Advanced Touch Options

Important Note: Executing the Advanced Options may alter the performance of your touch sensor or render it inoperable. You should be aware of expected results before executing any option. If you are not familiar with the outcome of these settings, you should ***not*** be using these options.

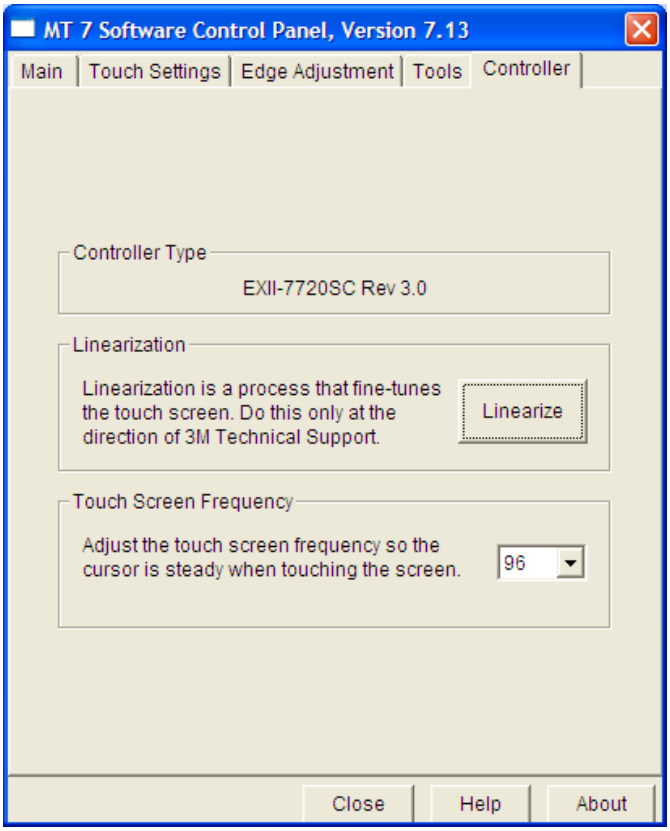
This option controls certain advanced functions for your controller. Depending on the options you have selected and the availability of that function for your given controller, you can choose certain Advanced Options from this screen.

- Enable manual linearization (only for EX, CX and some RX series controllers)
- Enable pen/finger selection (only for SX controllers)
- Enable frequency selection (only for EX and CX capacitive controllers)
- Enable controller identifier editing (helpful in multiple display setups)

Refer to the Controller Tab for a discussion of the various options associated with these Advanced Options settings.



Controller Tab



The Controller tab contains different choices depending on the type of touch controller(s) you have attached to your system and which options you selected from the Advanced Options from the Tools tab.

Controller Type

If you have more than one controller attached to your system, this field displays the controller currently selected on the Main tab. This data may be useful for Technical Support issues. The touch controllers supported with this release are as follows:

- EX USB, HID, and Serial capacitive and resistive controllers
- CX USB controllers
- DX Dual mode (USB and Serial) controllers
- PX Dual mode (USB and Serial) controllers
- RX USB and Serial resistive controllers
- SX Serial pen controllers

Depending on the options you have selected and the availability of that function for your given controller, the following items may appear:

- Linearization
- Touch Screen Frequency
- Pen/Finger Selection
- Controller ID

Linearization

With certain controllers, you can perform a linearization to fine-tune your touch sensor. It should be performed only at the direction of 3M Touch Systems, Inc. Technical Support. Linearization consists of touching 25 targets on the screen followed by 16 additional points to determine specific point accuracy over the face of the display.

The EX, CX, and some RX series touch controllers support Linearization:

Linearization Process

To perform a 25-point linearization of the touch sensor:

1. Make sure the video image is centered in the screen area using the horizontal and vertical controls.
2. Open the touch control panel and select the Controller tab.
3. Click Linearize. This will bring up, one at a time, 25 linearization targets on the screen.

   Note: If you press Escape or do not touch the sensor within 20 seconds, the system automatically cancels the linearization process with no change to the current settings.

4. Touch the sensor and position your fingertip to completely cover the green target. When touching the target, make sure you:
   a. Face the display directly.
   b. Perform the linearization in the position (sitting or standing) you expect to use the touch sensor.
   c. Touch the target firmly and precisely with your fingertip. Be careful to keep your other fingers away from the sensor as you touch the target. Hold a steady touch over the target until you hear a beep or until the target turns red.
5. Repeat these instructions until all 25 targets have been touched.

A dialog will appear asking if you wish to “Test, Accept, or Cancel”.

- If you select Accept, then the new calibration settings are automatically accepted.
- If you select Cancel, the original settings will be restored without change.
- If you select Test, the 25 targets will now be replaced with a set of 16 targets used to verify the linearization performed in steps 1 through 5.

  These targets are yellow to begin with. If you successfully touch the target, it turns green. If you are off, it turns red and returns a percentage error number. If the linearization is not within acceptable tolerances, you should perform the linearization process again.

  Repeat the previous process for each of these targets. This process automatically returns to the control panel once complete. If you are using a pen stylus, repeat the linearization procedure with the pen.

To test the accuracy of the linearization process, use the Draw Test program (found on the Tools Tab) to draw some lines on the screen. Check that they are smooth, straight, and thin. You do not want lines to look keystoned or curved.

To exit this program at any time during the process, press Escape.

Pen Overview (Pen Controller Only)

From the Tools tab, click on Advanced Options and select Enable Pen/Finger Selection.

These options are available only if your system has a pen controller. Pen Mode defines whether the touch sensor recognizes input from both a pen and a finger, from a pen only, or from a finger only. The default mode is Pen/Finger, which means that you can use either your finger or your pen to select options.

Certain pens come with a button that can be used for right-clicks. To right-click, press and hold the button while you touch the sensor. After touching the sensor, quickly lift the pen and release the button.

Note the Pen mode is immediately active. For example, if you select Pen Only, the system recognizes only the pen as a touch device. You cannot use your finger to make a selection. You can still use the mouse to select an option.

The system saves the Pen mode so that the next time you power up the system, the selected pen mode is active.

Pen and Finger Calibration

On a pen system, you must calibrate the touch sensor twice, (once with your finger and once with the pen) if you are using Pen/Finger mode.

Pen Modes

Note: Changing the Pen mode setting can optimize the performance of the touch sensor. In Pen/Finger mode, the pen controller checks for input from either a pen or a finger. The pen controller always gives priority to the pen. If you are not currently using the pen for your touch application, use Finger Only mode for optimum system performance. If you are not currently using your finger for your touch application, use Pen Only mode for optimum system performance.

Pen only mode—The system recognizes only pen touches on the sensor. The system ignores finger touches on the sensor.

Finger only mode—The system recognizes only finger touches on the sensor. The system ignores pen touches on the sensor.

Pen and finger mode—The system recognizes both pen and finger touches on the sensor. This mode is the default mode for Pen controllers. If the system detects both pen and finger touches at the same time, it gives the pen higher priority and acknowledges only the pen touches. This priority prevents accidental touches from your finger or hand being interpreted as input.

If you are using the pen and you lift the pen from the sensor, the system does not recognize finger touches until after a system-defined time delay. If your finger is on the sensor when the pen lifts off, the system ignores the finger until you lift off and touch the sensor again. For example, if you rest your hand on the sensor while you write with the pen, you can lift the pen and put it back again without your hand touch being acknowledged.

Touch Screen Frequency

Note: This option applies to capacitive EX and CX-series controllers.

From the Tools tab, you can choose the Advanced Options button. From the Advanced Options dialog, select Enable Frequency Selection to activate this option on the Controller tab if you are using a capacitive EX-based controller.

This option adjusts the operating frequency of the touch controller. In general, you will not need to adjust the Touch Screen Frequency. However, if you are experiencing problems with a jittery cursor, ragged lines, or random touch points, you may want to run the Enable Frequency Selection option.

Use the Enable Frequency Selection option to test the available frequency settings and determine the best frequency. The range of frequency settings and the default setting depends on your touch controller. You can set a new operating frequency, and then check the performance of the touch sensor at that frequency setting.

Be aware that if you choose Restore Factory Settings → Controller from the Tools tab, you will change the Touch Screen Frequency to the factory default setting. You may need to redo the Touch Screen Frequency at this time.

Touch Screen Frequency Procedure

From the Tools tab, you can choose the Advanced Options button. From the Advanced Options dialog, select Enable Frequency Selection to activate this option on the controller tab if you are using a capacitive EX based controller.

In the Touch Screen Frequency box, you will see a pull down list of several frequency options. In general, the highest possible frequency will provide the best results. Once you change the frequency, do *not* touch the sensor for approximately 30 seconds. Touch will return when the frequency has been changed. Test to see if you are satisfied.

On a pen controller system, you have the option to change the frequency for both your finger and the pen if you are using Pen/Finger mode.

Testing the Newly Selected Frequency

Any time you adjust the Touch Screen Frequency you should test how the touch sensor is working and verify you are satisfied with the operation of the touch sensor.

Test the sensor by touching in several places and sliding your finger around the sensor. The cursor should hold steady and smooth. If you see erratic or jittery cursor movement, readjust the Touch Screen Frequency.

Adjust the frequency until your touch test produces acceptable results. A good test is to go to the Draw program and hold your finger steady on the sensor. If the resulting pattern is a crisp and clear single dot, you should have a good frequency.

It is recommended that you recalibrate the touch sensor after you run the Touch Screen Frequency option.

Controller ID

Note: Changing this field will affect your multiple monitor setup.

From the Tools tab, you can choose the Advanced Options button. From the Advanced Options dialog, select Enable Controller Identifier Selection to activate this option on the controller tab.

If you do not have a multiple monitor setup, you do not need to use this field. Please refer to the Multiple Monitor section for more information.

CHAPTER 3

Windows™ CE Overview

MT 7 Software, a member of the MicroTouch™ Software Suite, provides unified driver support for MicroTouch touch technologies over a wide range of operating systems. This version supports Microsoft® Windows® CE operating systems, versions 4.0, 4.1, 4.2, 5.0, and 6.0.

Intended for touch system integrators, MT 7 provides flexibility in defining how the touch sensor affects the system. This product includes a Touch driver, a Control Panel, a Calibration Tool, and a Multiple Monitor Tool.

Installation Instructions

Using Windows™ Explorer, browse to the software distribution and double-click on the Setup program to start the installation. If you downloaded the distribution, unzip the file into another directory.

The Installer requires that Platform Builder be installed in your Windows™ 2000 or XP machine. The Installer puts the driver and any tools selected by user into the proper Platform Builder directories.

Follow the instructions given by the Setup program. First, you will be asked to browse to a directory in your Platform Builder installation. Normally a platform directory will look like this:

C:\WINCE###\PLATFORM\CEPC\FILES

Or a specific project directory, such as this:

C:\WINCE###\PUBLIC\MyProject\WINCE###\CEPC\OAKS\FILES

The Installer places most its files in a central directory called "C:\MT7_CE\x86.” This allows multiple Platform Builder platforms and projects to access the same files.

The Installer attempts to change the Platform.bib and Platform.reg, or Project.bib and Project.reg, files in a Platform Builder system.

The changes are "#include" directives that add MT 7 components to your target system.

With the Installer, you may choose to customize your installation. This allows you to select which components to install. The following components are selectable.

- The Touch driver is mandatory to operate the touch sensor.
- The Calibration Tool is recommended.
- The Control Panel includes calibration support and is recommended if additional settings are needed.

The Installer produces a file, TwTouch.bib that reflects the components you selected.

For the touch driver to work, you must include USB support in your Windows™ CE image, regardless of the type of touch sensor you use.

Instructions For Platform Builder For Microsoft Windows™ CE 4.0

As installed, MT 7 should operate under the Platform Builder for Windows™ CE 4.1 and above without any user changes.

The MT 7 Installer places an "#include" directive in Platform.reg and Platform.bib to include the files TwTouch.reg and TwTouch.bib. In Platform Builder 4.0 this directive does not work. Therefore you need to replace this "#include" directive with the contents of the MT 7 files.

Edit Platform.bib and locate the include directive for TwTouch.bib. Open TwTouch.bib in another editor, copy its contents to the clipboard and paste the clipboard into Platform.bib, replacing the include directive. Save Platform.bib.

Repeat the editing with Platform.reg, replacing the include directive with the contents of TwTouch.reg.

If you installed MT 7 into a project instead of a platform, the files you need to edit are Project.bib and Project.reg.

Supporting Multiple Windows™ CE Versions

The MT 7 Installer provides a different version of the driver for each version of CE starting with 4.0 and later. Even though version 4.0 of the driver appears to work on later versions of CE, you may want to replace the default 4.0 selection with the matching version of CE.

Inside TwTouch.bib, locate the line that includes TwTouch.dll and replace the "\400" in the path with "\410," "\420" or "\500," depending on the Platform Builder you are using (4.1, 4.2 or 5.0).

Save TwTouch.bib and exit the editor.

Supporting Multiple Projects

By default, the Installer places MT 7 in a central directory where it can be referenced by multiple projects. It also installs the TwTouch.reg and TwTouch.bib files in a single platform or project directory. Finally it adds include statements to the Platform.bib and Platfom.reg or Project.bib and Project.reg referencing the TwTouch.* files. To include MT 7 in additional platforms or projects, follow these steps.

Re-run the installer and browse to a new platform or project directory, which contain either Platform.bib and .reg or Project.bib and .reg files. If using Windows™ CE 4.0, then see the section "Instructions for Platform Builder Version 4.0" above for details.

If all your projects use the same MT 7 configuration, then there is nothing more to do. You should be able to build your projects.

In the TwTouch.reg file of each project, an "#include" directive points to C:\MT7_CE\X86\TwParam.reg. Change this directive to point to the project-specific copy of this configuration file.

If you installed MT 7 into a project instead of a platform, the file you need to edit is Project.bib.

Be aware that if you install multiple copies of MT 7 in different projects the uninstall will remove the central copy of MT 7 causing all other projects to lose the MT 7 references. Therefore, instead of using uninstall, simply delete the include statements from the particular project files.

Slow Draw

Using Draw mode can be slow on certain Windows™ CE machines. For example, drawing a curve inside a draw application may produce ragged lines and the cursor may lag behind. The "IOPollDelay" parameter adjusts the behavior of draw mode. Adjusting the default value of this parameter may improve the behavior and appearance of the curve without affecting overall performance of the Windows™ CE system. You can add this parameter to the system by editing the text file TwParams.reg found in C:\MT7_CE\x86. To add this parameter with a new default value insert the IOPollDelay line after the line below:

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\TwTouch\Parameters]
"IOPollDelay"=dword:1(value)

A value between 1 and 20, such as 10 may work best for your particular application. After adding or modifying the value of this parameter, you need to rebuild the Windows™ CE image and test the draw behavior.

CHAPTER 4

Windows™ XP Embedded Overview

MT 7 Software, a member of the MicroTouch™ Software Suite, provides unified driver support for MicroTouch touch technologies over a wide range of operating systems. This version supports Microsoft Windows® XP Embedded (XPe) operating system.

This product includes a Touch driver, Control Panel, Calibration Tool, and Multiple Monitor Tool that provide enhanced touch features on your system.

Installation Instructions

Using Windows™ Explorer, browse to the software distribution and double-click on the Setup program to start the installation. If you downloaded the distribution, unzip the file into another directory beforehand.

Follow the instructions given by the Setup program. The installer loads the Touch driver and Utilities including On-line Help (optional) files on the development system.

The Installer puts the files in a default directory called C:\MT7_XPe\. You may select a different location if desired.

Loading MT 7 Into The Components Database Manager

Use the Microsoft Component Database Manager (CDM) to add the MT 7 components to your XPe database. In the CDM, go to the Database tab and click on the Import button. In the resulting dialog, browse to C:\MT7_XPe and select the MT7.SLD file. Click the Import button to make the MT 7 components available to Target Designer.

MT 7 Component Selection In Target Designer

Use the Microsoft Target Designer to select the specific MT 7 components you want for your target device. Inside the Target Designer, the Component Browser contains the MT 7 components you added with the CDM.

Use this Browser to select the MT 7 components for your target image. The only required component is the MT 7 Touch driver. In the Component Browser, look under "Hardware:Devices:Mice and other pointing devices". Select the 3M Touch Systems MT 7 Touch driver.

Whether you are using a serial or USB controller, the MT 7 touch driver requires USB support. You must include the XPe USB support component in your target device.

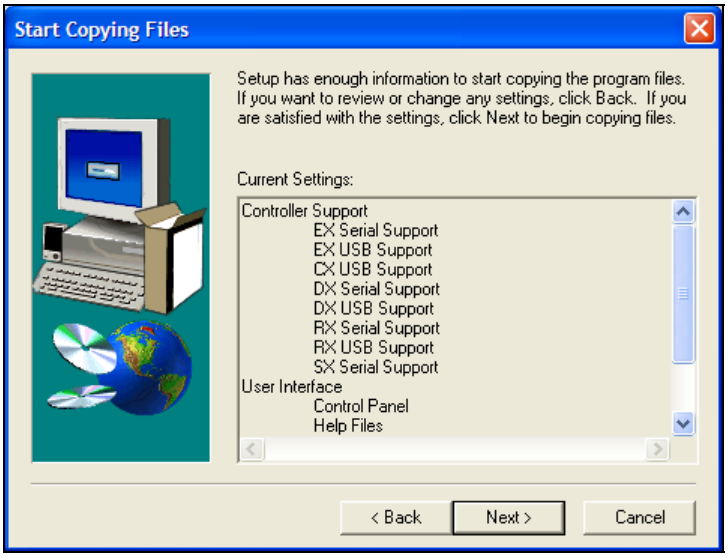
MT 7 Components

MT 7 has several additional components, found in the Component Browser under "Software:Application:OEM," that you may select according to the needs of your target system.

The "MT 7 Control Panel" component allows the end user to calibrate their touch sensor, configure, and modify some touch behavior.

The "MT 7 Calibration Tool" component allows the user to calibrate their touch sensor.

Note that you must select one or more of the following controller support components to enable the previous tools.

- 

CHAPTER 5

MT 7 for Linux® Overview

MT 7 for Linux® provides support for the Linux® operating system for kernels 2.4 and 2.6. This product includes a user-space touch screen driver, an X input module, and a calibration tool.

This build has the initial release of the Control Panel application. This program allows a user to calibrate sensors and customize the touch system.

System Requirements

Hardware Prerequisites

The MT 7 for Linux® software runs on most computers that run the Linux® kernel 2.4 or 2.6 operating systems. The computer's processor must be compatible with the Intel x86 series of processors.

One or more of the following 3M™ MicroTouch™ touch controllers:

- EX USB, HID, and Serial capacitive and resistive controllers
- CX USB controllers
- DX Dual mode (USB and Serial) controllers
- PX Dual mode (USB and Serial) controllers
- RX USB and Serial resistive controllers
- SX Serial pen controllers

Depending on the sensor, either a serial port or a USB port is required.

Software Prerequisites

The MT 7 for Linux® software requires a 32-bit version of the Linux® operating system of kernels 2.4 or 2.6.

If using USB controllers, the Linux® operating system kernel 2.6 is required.

Shared memory support is required. This is absent in some early kernel 2.4 systems.

The calibration tool requires an X11-compliant X Windows™ server.

The control panel requires a Java™ runtime environment (JRE) compatible with Sun Microsystems' Java.

Installation Instructions

The MT 7 for Linux® software is proprietary and not open source. The distribution is an executable program. Run this program using the following command line:

Chmod a+x mt7.*.bin

You will then be asked to either accept or decline the license agreement. If you accept the agreement, the program produces a 'tar.gz' file. Follow the remaining instructions to complete the installation process. For your convenience, the 'tar.gz' file contains a copy of the license in the file 'License.txt'.

Preparation

You must log in the Linux® operating system as the root user or use the 'su' command to get super user access. On some systems, you may need to run in single user mode (run level 1 on some systems). The installation process requires write access to various system directories. By default, the directories are:

- /etc/udev or /etc/hotplug
- /usr/lib/xorg/modules/input or /usr/X11R6/lib/modules/input
- /usr/lib
- /etc/init.d or /etc/rc.d
- /etc/X11/xinit/xinitrc.d or /etc/X11/xsessions.d

After installation completes, the MT 7 for Linux® software no longer requires write access to these directories.

General Instructions

The MT 7 for Linux® package arrives as a tar.gz file. By default, the expanded package resides in the subdirectory 'twscreen'. A script named 'Install' installs the package. Installation includes creating the necessary init script, creating symbolic links in /usr/lib, making a X input module available, enabling USB hotplug for 3M™ MicroTouch™ devices, and creating a Remove script.

Before installing the package, read below to see if any of these special situations apply to you. If they do, you may need to edit the Install script.

If you run the Install script and then discover errors, always run the Remove script to undo the installation. This removes possibly erroneous links into your system. Then edit the Install script, make the necessary changes, and install again.

Normal Installation

Copy the tar.gz file into the directory where you want the package to reside, such as /etc. Issue the command 'tar xzf twscreen.<version>.tar.gz' where <version> is a version number string of the tar.gz file. This creates the directory 'twscreen' in the current directory. From there, go into the twscreen directory and issue the command './Install'. This script installs links in the Linux® and X Windows system for your touch sensor to work with your system.

Installing on Write-Protected Systems

The MT 7 for Linux® software requires access to a writeable directory for runtime and configuration data. By default, it uses a 'data' directory in the twscreen directory. If you need to have the package in a read-only directory, then decide on a writeable directory for the package to use. Edit the Install script and search for the line 'DataDir="". Change the definition of DataDir to the writeable directory. Save the changes and run the script. This creates the data directory where desired and creates a link in the package directory to the data directory.

Other Options

The MT 7 for Linux® software should install without other changes on most Linux® systems. However, if you have a customized directory structure or the installation script fails, you may need to edit the Install script and change one or more of the following script variables.

UdevDir and HotplugDir
The MT 7 for Linux® software supports hot plugging of USB controllers through either the udev or the hotplug systems. Older versions of Linux® used the hotplug system. The udev system replaced hotplug. It is on most current distributions. The Install script checks for udev support first. It assumes that the udev support files are in the directory /etc/udev/. If udev resides elsewhere, change the definition of UdevDir to the appropriate path.

The Install script assumes that the hotplug support files are in the directory /etc/hotplug/. If hotplug resides elsewhere, change the definition of HotplugDir to the appropriate path.

If you want to disable hot plugging of USB controllers, change both UdevDir and HotplugDir to non-existent paths.

XorgDir and XFree86Dir
The MT 7 for Linux® software uses an X input module to get touch data into the X Windows server. The Install script inspects the paths /usr/lib/xorg/modules/input and /usr/X11R6/lib/modules/input. If your X input modules reside elsewhere, change the appropriate variable to the correct path.

LibDir
The MT 7 for Linux® software uses several shared objects. The Install script links these into /usr/lib. If your system's libraries are elsewhere, change this variable to point to the correct path. This directory is mandatory and the software cannot run without its libraries in a common library directory.

SEDir1 and SEDir2
Some of the shared objects in the MT 7 for Linux® software require access to objects secured by SELinux. If the Install script detects SELinux, it assigns a security type to some shared objects. The script inspects the directories /usr/selinux/booleans and /selinux/booleans to determine if SELinux is active. If your SELinux is in a directory other than these, change the definition of one of these variables.

SEGivePermission
If the Install script detects SELinux, it assigns the security type 'texrel_shlib_t' to some shared objects. If this is not appropriate for your system, edit the script and change this variable.

InitDir
The MT 7 for Linux® software uses an init script, TWDrvStartup, to start and stop the touch driver. Normally, this runs at run level 5. If your init scripts are located in a directory other than /etc/init.d or /etc/rc.d, then set InitDir to the appropriate path.

LSBDir
An init script must adhere to a variety of conventions. Some conventions use files, such as function, in the script directory. The variable 'InitDir' handles these cases.

Some LSB-compliant systems require access to a file 'init-functions' normally found in /lib/lsb. If you have an LSB system and the init-functions file is not in /lib/lsb, you need to change the value of LSBDir.

JavaBinDir
Set this symbol to the path of the Java™ runtime environment (JRE). This is needed to run the MT 7 Control Panel. If not set, the control panel will use the system’s default “java” program.

ConvertAtRead
The MT 7 for Linux® X input module translates raw touch data from the touch driver into the X Windows server screen locations. Normally, the X server does this in two steps, first reading the raw input data from the input module and then having the module convert the coordinates as a second step. Some versions of the X.Org server code require that the input module return only converted coordinates in the single read step. This seems to apply only to early 1.4 versions of the server.

If you use this server, or if touch is inaccurate after calibration, change the ConvertAtRead value to "true".

To determine the version of your X server, issue the command "X -version".

XorgConf
Starting with X.Org's X server version 1.5, a server configuration is no longer needed. However, MT 7 for Linux® requires one to register its X input module with the server. In this case, the Install script copies a generic configuration file to /etc/X11/xorg.conf.

If you want the configuration file copied elsewhere, change the XorgConf value to the desired file name.

Error Messages During Installation

This covers error messages generated by the Install script. Programs used by the script may generate their own messages. This section does not cover those messages.

ERROR: MT 7 for Linux® not installed - shared memory support not detected

The MT 7 for Linux® software uses shared memory. Some older Linux® systems do not provide this support and the package will not run. Contact 3M Touch Systems for other options.

Cannot install the init script

The Install script tries to detect the presence of the chkconfig and update-rc.d utilities and the /etc/rc.d/rc.local script. If it cannot find any of these, this message appears. If your system uses the chkcconfig or update-rc programs, make sure the PATH environment variable contains the path to where the programs reside. If rc.local is in another directory, edit the Install script and change the value of the InitDir variable. If your system uses some other system, you need to place the init script TWDrvStartup in the appropriate place. The Install script creates a copy where the MT 7 for Linux® package resides. You may need to edit the TWDrvStartup script to work with your system.

USB touch controllers are not supported under kernel 2.4

The Linux® operating system, kernel 2.4, did not fully support the methods needed by the MT 7 for Linux® driver to read touch reports from USB touch controllers. The package supports only serial touch controllers under the 2.4 kernel.

Hot plugging of USB touch controllers is not supported

The Install script cannot find the udev or hotplug support files. If you do not need hot plugging of USB controllers, ignore this message. Otherwise, edit the Install script and change the UdevDir or Hotplug variable to an appropriate value.

Cannot find needed libstdc++.so in /usb/lib

Variations of the message may refer to other directories depending on the setting of the LibDir variable in the Install script. The installation script could not find the standard C++ shared objects. Confirm that the LibDir variable is set correctly. If so, you need to install the C++ shared objects or, if already present, create a symbolic link using the name libstdc++.so to the C++ shared object.

Cannot install the X input module

The Install script could not find the directory for the X input module. Confirm that the variable XorgDir or XFree86Dir are set correctly in the Install script.

Removing MT 7 For Linux

In the installation directory, run the script Remove. This removes the data directories and disengages MT 7 for Linux® from the system. The files remain. You must manually remove the files from the twscreen directory.

Troubleshooting The Init Script

Due to the variety of methods of running init scripts, the Install script makes a best guess as to when the TWDrvStartup script should run. This guess is occasionally wrong.

There are three critical considerations regarding the init script sequence.

1. The USB file system must be operational before the TWDrvStartup script runs. If not, the driver does not service USB touch controllers. A symptom of this is calibration does not work.

2. Any script that inspects serial ports must finish before the TWDrvStartup script runs. These programs can interfere with the driver's ability to detect and identify serial touch controllers. A symptom of this is touch or calibration not working.

3. The TWDrvStartup script must complete before running the X server. The TWDrvStartup script modifies the X server configuration file (either xorg.cfg or xfree86.cfg). When the system shuts down, these files are restored to their original state. It also starts the touch driver, TwDriver. Scripts that launch the X server reference the programs xdm, gdm, or kdm. Symptoms of this are a lack of touch or possibly erratic touch with USB touch controllers.

In each case, you need to rearrange the order of the init scripts to satisfy the requirements of the MT 7 for Linux® software. The method to do this is specific to your system's distribution.

Troubleshooting Touch Behavior

Many issues can affect touch.

If you have no touch, it is likely that the X Windows server is starting before the MT 7 for Linux® driver. First, inspect the X Windows configuration file, usually either /etc/X11/xorg.conf or /etc/X11/xfree86.conf, and see if there is an entry for the "twxinput" driver. If this entry is present, inspect the X Windows server log file, usually either /var/log/xorg.0.log or /var/log/xfree86.0.log, to see if the driver loaded without error. If the entry is missing or there is an error in the log file, see the section above, "Troubleshooting the Init Script".

If the cursor reacts to a touch but does not appear under your finger, usually a simple calibration fixes the problem. If it does not, open a terminal window and type the command "X -version". If the first line of the output starts with "X.Org X Server 1.4" then you may need to enable the "ConvertAtRead" option. Review the section on "Other Options" under "Installation" for details.

Running Touch Applications

There are two touch applications that you can run to customize the touch system. These programs reside in the directory where you installed the package.

1. The Calibration program aligns the touch sensor to the display's screen. You should run this program after installation or whenever adding a new sensor to the system. Run the program by running the 'TwCalib' program.

2. The Control Panel provides more features to customize your touch system. Run this program as needed by running the 'StartCP' script.

Note: This is a Java program and runs with the JRE from Sun. If you experience problems running the Control Panel, download a JRE from Sun's website and install it. You also need to edit the StartCP script to provide the proper path to the JRE.

Known Issues

Refer to the Readme.txt file for a list of known issues associated with this release.

APPENDIX A

Multiple Monitor Setup (Windows™ Only)

Overview

The Multiple Monitor Manager enables you to set up multiple displays with touch sensors. You must intentionally load this utility during installation in order to configure multiple displays.

To begin, ensure that you have unique identifiers for each controller. Check them from the Main tab – Controller ID. This field identifies the controller(s) attached to your system. If any controller ID value appears with a dot, (for example: USB00000001.1, USB00000001.2, etc.) you have two or more controllers with the same identifier. You must change these IDs before you run the multiple monitor manager.

Changing the Controller ID

To change the Controller ID:

1. These values may be edited from the Tools tab → Advanced Options menu and select "Enable controller identifier editing". The resulting editable field appears on the Controller tab.
2. Controller ID values can be as simple as 00000001, 00000002, and 00000003.
3. Once the IDs are set, you are done. Exit the control panel.

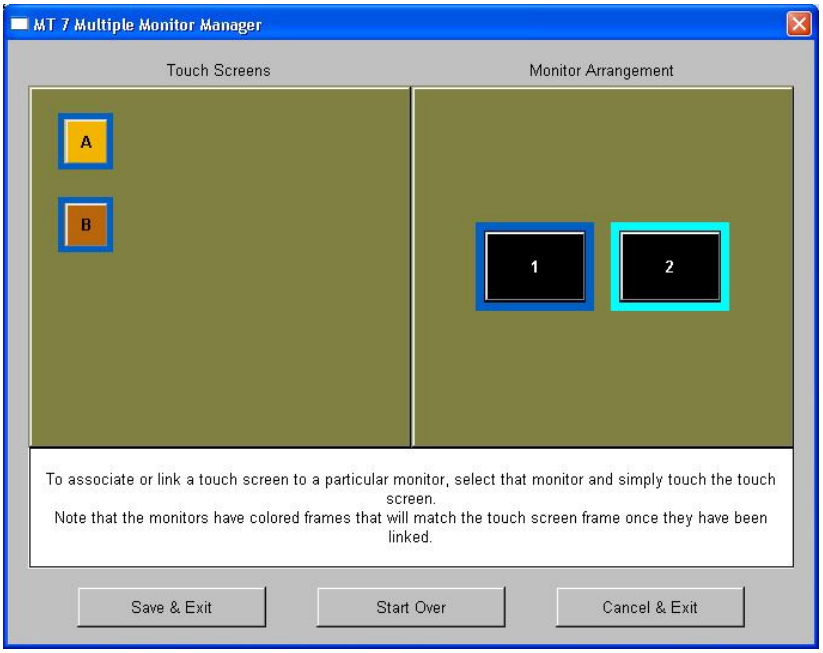
Setting Up Multiple Displays

To setup Multiple Displays:

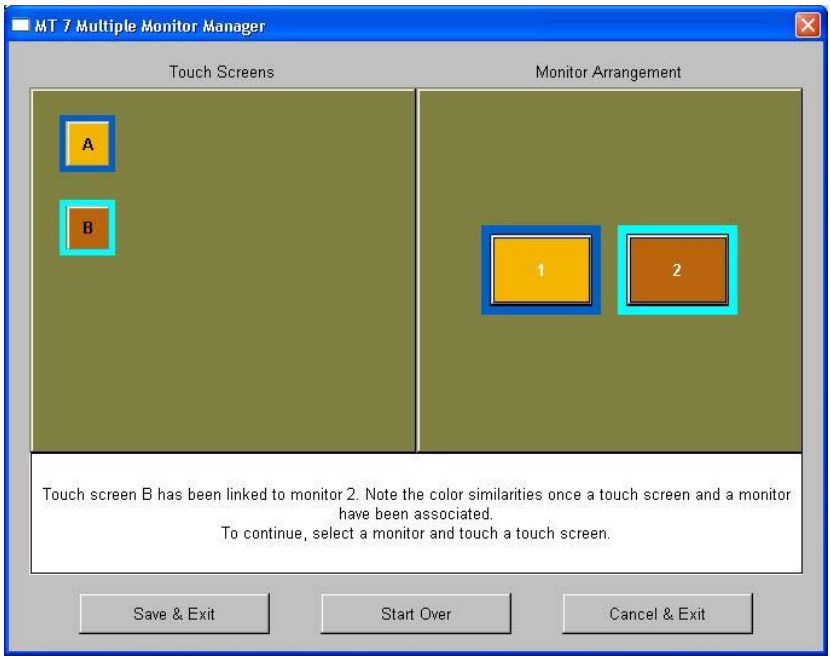
1. Open the MT 7 Multiple Monitor Manager by clicking: Start → Programs → MicroTouch MT 7 → MultiMonitor Manager.
2. To associate or link a touch screen to a particular display, select that display and simply touch a touch screen. Note that the displays have colored frames that will blink when selected and match the touch screen frame once they have been linked.

3. Once you have linked your touch screens to displays, you may choose to Save your changes, Cancel your changes or simply Start Over.

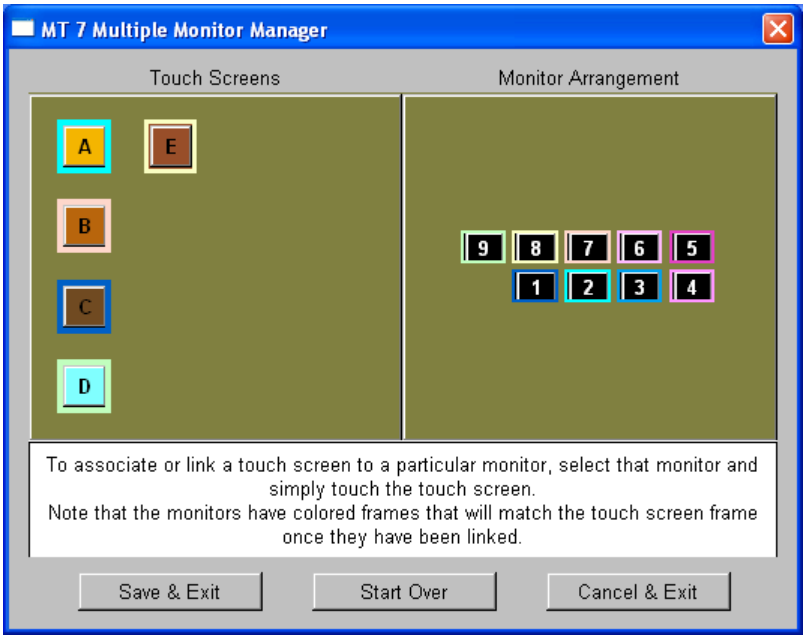
In the screen below, none of the touch screens or displays has been linked.



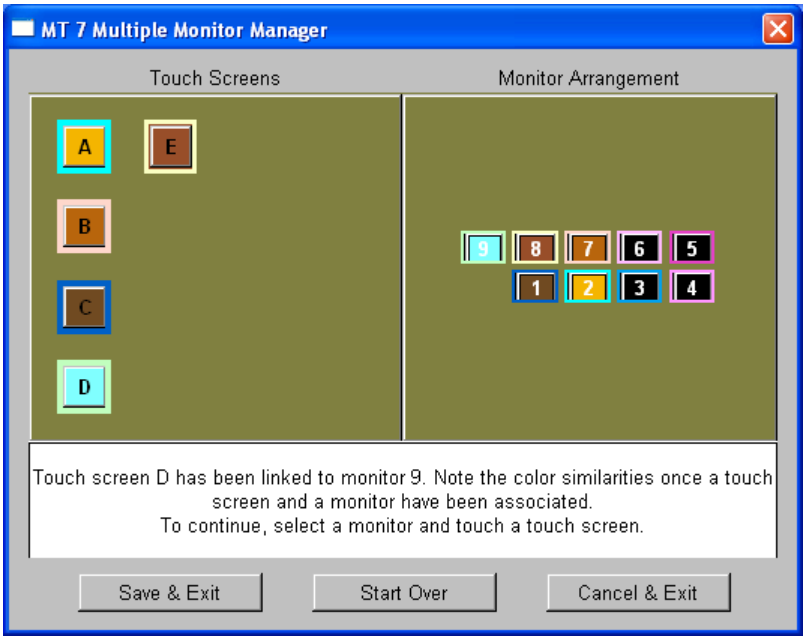
In the following example, Touch screen A has been linked to Monitor 1 and Touch Screen B has been linked to Monitor 2. Note the color similarities once a touch screen and a display have been associated.



In the following screen, there are 5 touch screens and 9 monitors that can be linked.



In the following example, Touch screen A has been linked to monitor 2, Touch screen B has been linked to monitor 7, Touch screen C has been linked to monitor 1, Touch screen D has been linked to monitor 9, and Touch screen E has been linked to monitor 8. Note the color similarities once a touch screen and a monitor have been associated.



APPENDIX B

Troubleshooting the Touch System

Overview

This chapter provides tips and strategies for problems you may encounter with the touch system either during installation or normal use.

3M Touch Systems, Inc. is committed to helping you get the most out of your touch system. If you are unable to resolve your problem using the troubleshooting information contained in this chapter, contact 3M Touch Systems, Inc. Technical Support. For information on how to reach technical support in your area, refer to the 3M Touch Systems, Inc. Support Services section at the beginning of this guide.

If you are experiencing problems with the touch sensor, check that all cables are connected properly and restart your system.

Verify that any previously loaded hardware and/or software installed in the same serial port as your sensor has been uninstalled. Even though the hardware has been disconnected, the software can still claim the port. Ensure that all components are completely removed from the system files.

To correct the communication settings in a Windows™ system, use the Windows™ Hardware Conflict Troubleshooter from Windows™ Help.

Note: For specific troubleshooting information for Linux® systems, refer to Chapter 5.

Other Serial Devices do not work

EX serial and SX pen controllers do not support plug and play functionality used by the Windows™ operating system. MT 7 must search for these devices and that process can interfere with other serial devices on the same system.

If you do not have either of these controllers, rerun setup, select the upgrade option and under Controller Support deselect EX and SX pen controllers. Complete the software setup and reboot your system.

Important Note: Editing registry values may alter the performance of your system or render it inoperable. Create a backup of your Windows™ system registry file before making any changes to these files. Refer to Microsoft Windows™ Help for instructions on handling registry files.

If you do have either of these controllers, you will need to edit the registry file. In REGEDIT, browse to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\TwTouch\Parameters. Create a new string value called SerialPortSearch. Assign a value to the set of COM ports with serial controllers (i.e., “COM1,COM3”). When complete, reboot your system.

Multiple Monitor Support

This release of the MT 7 control panel supports multiple displays. When installing MT 7, you must select the Multiple Monitor Manager tool to enable this function.

Cursor Does Not Reach Edges of Screen

Try calibrating the touch sensor. When calibrating the sensor, be sure you touch the center of each target firmly and precisely. If additional tuning is necessary, use the Edge Adjustment Tab to enable greater ability to touch into corners and edges of the sensor.

Cursor is Jittery

You need to adjust the Touch Screen Frequency. Choose Touch Screen Frequency from the Controller tab. Any time you adjust the frequency you should test how the sensor is working and verify you are satisfied with the operation of the sensor.

Note: This option applies to capacitive EX and CX-series controllers.

Cursor Jumps or Bounces Suddenly Across the Screen

You are most likely touching the sensor in more than one spot at the same time. Be sure to point and touch with one finger only. Keep your other fingers away from the touch sensor. Do not rest your other hand on the display or bezel at the same time.

Double-Click Doesn't Work (not available on Windows® CE or Linux®)

Use the Touch Settings tab to adjust the double-click speed and area. The double-click *speed* defines how quickly you must touch the sensor for the system to interpret your actions as a double-click. Set the double-click speed in the slow to medium range for optimum performance with a touch sensor.

The double-click *area* defines the space in which you must touch the sensor for the system to interpret your actions as a double-click. Set the double-click area in the medium to high range for optimum performance with a touch sensor.

Click on the globe to test the double-click speed and area settings. If globe begins to spin, the touch sensor recognized your touch as a double-click.

Note: Changing this setting will affect the double-click setting of the mouse.

Drawing Lines Are Not Straight and Smooth

Contact 3M Touch Systems, Inc. Technical Support for assistance performing a manual linearization.

Find Touch Screen (for Serial Plug & Play Controllers)

Note: This option applies to Windows™ only.

1. Do a Find New Hardware from Windows® control panel.
2. Reinstall MT 7 using the Custom installation option and make sure you are choosing the correct controller support.
3. Reboot your system and try again. If the problem persists, call 3M Touch Systems, Inc. Technical Support.

Note: Verify that any previously loaded hardware and/or software installed in the same serial port as your sensor has been uninstalled. Even though the hardware has been disconnected, the software can still claim the port. Ensure that all components are completely removed from the system files.

Touch Is Not Working

If the controller information box on the Main Tab is grayed out and contains no information, the sensor is not communicating with the controller. If MT 7 does not find the sensor, check that the sensor is connected properly.

If you are experiencing problems with the touch sensor, check that all cables are connected properly and restart your system.

To correct the communication settings in a Windows® system, use the Windows™ Hardware Conflict Troubleshooter from Windows™ Help.

Note: Verify that any previously loaded hardware and/or software installed in the same serial port as your sensor has been uninstalled. Even though the hardware has been disconnected, the software can still claim the port. Ensure that all components are completely removed from the system files.

Check the following items:

1. Make sure the touch controller is connected to the correct port.
2. Review the installation procedures and verify all hardware is properly connected. Check the serial port and touch sensor cable connections. Check that the touch sensor and controller cables do not have any kinks and that connector pins are not bent.
3. Reset the touch sensor and its controller. Turn off both the computer and the display, wait a few minutes, and then turn on each device again.

Touch Driver Did Not Load

Check Windows™ device manager under *mice and pointing devices* to see if the MicroTouch drive is loaded and running without errors (under *system devices* for the MicroTouch bus driver (used only for EX serial touch sensors)).

If these are missing, run Installdriver.bat inside WINNT\Program Files\ MicroTouch\MT7 to reload the driver.

If this does not work then run Removedriver.bat, reboot then rerun Installdriver.bat.

Right-click tool buttons are swapped

Using the control panel, it is possible to change which button on a mouse generates the "left" and "right" clicks. This feature allows left-handed people to use their index finger to produce a left click. This setting causes the touch driver to also reverse the meaning of a touch. Normally, a touch produces a left click. With the changed setting above, a touch starts producing a right-click.

To address this, edit the file "TwFactory.cfg" in the MT 7 for Windows™ software directory. If this file is empty, add in the text:

<Touch>

</Touch>

Between these two lines, add a new line:

SwapMouseButtons=1

Save the file.

Open a command line window and set your working directory to the MT 7 for Windows™ directory. Issue the command: TwCfgUtil /u TwFactory.cfg

At this point, your touches start producing the desired left-clicks.

If your system supports multiple users, you may need to create separate files, such as TwLeft.cfg and TwRight.cfg. In TwLeft.cfg, set SwapMouseButtons to 1 and in TwRight.cfg, set SwapMouseButtons to 0.

Add the above TwCfgUtil to each user's Startup menu or login script, using TwLeft.cfg or TwRight.cfg as appropriate.

A Previous Version of TouchWare Software Was Detected

Note: Before making any changes to the registry files, be sure to make a backup copy.

If the MT 7 installer reports this, then uninstall TouchWare by going to Start → Programs → TouchWare → Uninstall TouchWare. Do not install MT 7 over a previous version of software.

If this does not work (MT 7 still won't install) then the Registry needs editing. Start REGEDIT and browse to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\MTSTCH and delete the MTSTCH key.